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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/346,353	07/02/1999	MARIE ANGELOPOULOS	YO996-049BX	2281

7590 08/20/2010  
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EXAMINER
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YOON, TAE H

ART UNIT	PAPER NUMBER
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1796

MAIL DATE	DELIVERY MODE
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08/20/2010

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 09/346,353	<b>Applicant(s)</b> ANGELOPOULOS ET AL.	
	<b>Examiner</b> Tae H. Yoon	<b>Art Unit</b> 1796	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1,20,22,23 and 47-57 is/are pending in the application.
- 4a) Of the above claim(s) 24-46 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,20,22,23 and 57 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948)                        | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____.  |

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The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1, 20, 22, 23 and 57 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 recites “an electrically conductive conjugated polymer” in lines 9-11 and “a precursor to an electrically conductive conjugated polymer” in lines 13-15, but lines 16-20 recites doping of said precursor only. Thus, said doping process is not direct to the electrically conductive conjugated polymer and such partial limitation is confusing and indefinite. Note that **claims recite “consisting of” which does not permit any alteration to components and steps.**

The recited polymers in lines 9-11 and lines 13-15 of claim 1 are exactly same but “precursor” is recited for the polymers lines 12. Thus, it is confusing and indefinite.

The recited technique of “solvent extraction” of claim 22 improperly broadens scope of claim 1 in which “consisting of” is recited. Said “consisting of” permit does not permit any alteration to steps and said “solvent extraction” would inherently require the use of other (immiscible) solvent(s). In another hand, the recited “spin-coating” and “solution casting” of claim 1 inherently would use technique of solvent evaporation.

**Above rejection is maintained with following response.**

Applicant states on top of page 5 of the response that claim 22 has been cancelled, but the claim 22 is still pending in the claim section contrary to applicant's statement.

Applicant asserts that the recited polymers in lines 9-11 of claim 1 are inherently electrically conductive without doping, but such assertion lacks probative value.

Ikkala et al (US 5,520,852) teach that polyanilines are either in the non-doped/non-conducting or conducting salt complex form at col. 2, lines 5-7 and Elsenbumer (US 4,983,322) teaches a polyaniline salt formation with an acid at col. 5, lines 53-55.

**Also, a polymer with an electrical conductivity of less than  $10^{-9}$  S/cm or even less than  $10^{-6}$  S/cm is not considered an electrically conducting polymer in the art (see bottom of col. 19 in Ikkala et al (US 5,520,852)). As a matter of fact, the instant specification discusses the conductivity of  $10^0$  S/cm or higher at pages 3 and 12 and in examples. Thus, a polymer having any incidental measurable conductivity such as  $10^{-9}$  S/cm or  $10^{-6}$  S/cm cannot be considered as an electrically conducting polymer, especially the instant specification teaches the conductivity of  $10^0$  S/cm or higher.**

Yaniger et al (US 4,851,487) teach that free-base form of polyaniline is electrically non-conductive and a doping is needed in order to impart an electrical conductivity at col. 1, lines 13-33. **Said prior art rebuts applicant's assertion that the recited "neat" polymers are electrically conductive. Actually, lines 6-10 in page 2**

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**of the instant specification teach that the conjugated polymer systems are made electrically conducting by doping.**

Thus, the recited electrically conductive conjugated polymers such as polyaniline are not inherently electrically conductive contrary to applicant's assertion. Thus, said electrically conductive conjugated polymers in lines 9-11 of claim 1 are inherently doped which are redundant in view of the recited "a precursor to an electrically conductive conjugated polymer" and a doping thereof. Thus, cancellation of said electrically conductive conjugated polymers in lines 9-11 of claim 1 is suggested since said doping of the precursor would yield said electrically conductive conjugated polymers recited in lines 9-11, especially in view of a partial limitation of the doping of the precursor only.

Also, with respect to claim 57, said doping process is not direct to the electrically conductive conjugated polymer and such partial limitation is confusing and indefinite. Thus, cancellation of claim 57 is suggested with an amendment to claim 1 in above suggestion.

Claims 1, 20, 22, 23 and 57 are would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action. Again, cancellation of non-elected claims 47-56 in order to expedite prosecution is suggested.

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tae H. Yoon whose telephone number is (571) 272-1128. The examiner can normally be reached on Mon-Fri.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu can be reached on (571) 272-1114. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Tae H Yoon/  
Primary Examiner  
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THY/August 17, 2010